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are half a dozen large Mexican specimens of *Cereus giganteus*, from a foot to eighteen inches in thickness, and from ten to fifteen or more feet in height. A dozen or more enormous plants of *Agave Americana*, from Mexico, have been hollowed out so as to show the secretion of juice which when fermented yields a favorite drink of the Mexicans.

In the main building there is little to attract the botanical student until he reaches the Mexican exhibit, which contains a collection of woods (not yet fully labeled) and a fine collection of seeds of economic interest. Some of the West Indian countries have similar collections of more or less value.

The exhibit made by Jamaica is well worth studying, and is full of interesting things. Thus may be mentioned fruits of *Anona*, *Persea*, *Myristica*, *Psidium*, *Achras*, and many others; woods of *Guaiacum*, *Cassia*, *Hœmatoxylon*, *Crescentia*, *Cinnamomum*, Rosewood (*Dalbergia*), Cedar (*Cedrella*), Satinwood (*Chloroxylon*), Lace-bark (*Lagetta*), Fiddle-wood, Bully-tree, Logwood, Braziletto, etc., etc. A collection of twenty-five economic products of the Cocoanut Palm gives one a little idea of the great value of this one tree to the inhabitants of the warm regions. The varieties of Coffee, Pimento, Cacao or Chocolate are well worthy of the attention of the botanist, as are also the large collections of fruits and seeds yielding spices and condiments, the collection of meals and starches, vegetable oils, dye-woods, medicinal products, and fibres.

GENERAL NOTES.

Notes on Forest Trees.—A careful perusal of Vol. IX of the Census Reports, devoted to a consideration of the forest trees of North America, has suggested the following notes upon the occurrence and distribution of some species. It is not intended to criticise that excellent report, but merely to give additional information upon the distribution and occurrence of forest trees in Arkansas, and to enumerate some species found in this State not mentioned in former notes.

Magnolia grandiflora probably is not indigenous to Arkansas. *Zanthoxylum Clova-Herculis* is common in low ground north of the Arkansas river in Arkansas. *Ptelea trifolia* was not included in former lists, as it is a shrub in this State, though quite common. *Ilex cassine* has not been mentioned in former lists by the writer, though credited to South Arkansas in the Census Report. It occurs in the mountains about Hot Springs, and is found on the tufa ledge deposited by the hot water. *Æsculus glabra* occurs as far south-west as the valley of the Red River in Arkansas. *Rhus venenata*, credited to South Arkansas in Census

Report, has not been rediscovered. We do not know the authority for its occurrence in Arkansas. Prof. Lesquereux admits it with an interrogation upon the authority of the people. We will be glad to add it to the list of Arkansas trees, upon good authority, regardless of its poisonous properties. *Cratægus spathulata*, Mx., occurs in the Arkansas River valley as far as the Indian Territory. *Cratægus cordata*, for some reason, was not credited to Arkansas, nor even to the west side of the Mississippi River, though common in North-west Arkansas. *Cornus asperifolia*, not admitted as a tree in Census Report, occurs in Central Arkansas in low ground, 0.14 meters in diameter, and has a well defined trunk, upright and 2 meters to the branches. *Myrica cerifera*, L., though not mentioned as occurring west of the Mississippi River, is common about Hot Springs in the mountains. It is a small shrub in this State. *Fraxinus quadrangulata*, said to occur in Arkansas at Du Voll's Bluff, upon the authority of Letterman. The writer reported it to the Census Department from that locality, but upon more careful examination found he was wrong. Mr. Letterman has not seen the species in Arkansas, but has found it in South-east Missouri, not far from the Arkansas line, and it, without doubt, will yet be found in this State. *Quercus aquatica* extends up the Arkansas River valley beyond the Arkansas line into the Indian Territory.—F. L. HARVEY, *Fayetteville, Ark.*

Nostoc and Penicillium in Na $C_2H_3O_2$.—Our chemist recently handed me a bottle containing a four per cent. solution of sodium acetate, in which there had developed an abundant plant growth of some kind. Grayish black flocculent looking masses were fastened to the bottom, and floating in the liquid (as if suspended) was an opalescent jelly-like mass extending nearly across the bottle, and having a flowing motion when disturbed. A microscopic examination revealed the fact that the latter was one of the *Nostocaceæ*, but with much smaller cells than any yet examined, and with heterocysts, if any, but little larger than the ordinary cells.

The grayish black hemispherical masses proved to be a species of *Penicillium*, but differing from any normal form. The medium in which it grew seemed to furnish it chance for a most rampant development. The conidiospores were regular and irregular, unusually Torula-like in structure, and were budding profusely as in the yeast plant. Single or double conidiospores were frequently seen sessile upon hyphal threads, without any interposed aërial hyphæ, and these also budding. The characteristic budding chains of the yeast plant were frequently to be seen arising from hyphal threads or supplementing a row of conidiospores. A medium so favorable for the development of these plants, and one so easily obtained should be of use in our laboratories.—JOE N. ROSE, *Botanical Laboratory, Wabash College.*

Abnormal Claytonia.—While botanizing to-day I found an unusual form of *Claytonia Virginica*, which illustrates what might be called condensed inflorescence. There were only two flowers in the raceme. The usual number is from ten to fifteen (more commonly twelve). The lower one had three sepals, which were twice as broad as in the usual form, eight petals, nine stamens (two opposite one of the petals), and a double pistil. The ovary was two-celled, placenta basilar but apparently attached to the partition, ovules six or seven in each cell. The upper part of the ovary was composed of small sacs opening into the common cavity. The apex of the ovules apparently projected into these sacs. A section near the top of the ovary had the appearance of being many celled. There were seven stigmas. The flower was larger than those of the normal form. The upper flower, which was in bud, had two sepals, seven petals, and seven stamens. The pistil, though small, was apparently normal.—F. L. Harvey, *Fayetteville, Ark., April 12.*

New Species of Andropogon.—Prof. E. Hackel, who is preparing a Monograph of the *Andropogoneæ*, recognizes the following new species in the genus *Andropogon*, and publishes them with admirable descriptions in "Flora" (oder allgemeine botanische Zeitung) for 1885. Four of the species, as indicated in the list, are North American.

Sect. *Schizachyrium.*

1. Andropogon urceolatus.
2. A. nodulosus.
3. A. obliquiberbis.
4. A. Schweinfurthii.
5. A. cirratus. (Western Texas and New Mexico, nos. 804 and 2105, C. Wright. Silver City, E. L. Greene.)
6. A. imberbis.
7. A. gracilipes.
8. A. Cubensis.

Sect. *Heteropogon.*

9. A. leptocladus.
10. A. Bellariensis.

Sect. *Cymbopogon.*

11. A. diplandrus.
12. A. Barteri.
13. A. macrolepis.
14. A. cornucopiæ.
15. A. grandiflorus.

Sect. *Arthrolepis.*

16. A. longiberbis. (Florida, leg. Garber, Curtiss.)
17. A. Liebmanni.
18. A. Cabanisii. (Pennsylvania, Florida, leg. Cabanis—in Herb. reg. Berolin. Florida near Apalachicola, leg. Chapman.)
19. A. Bourgæi.
20. A. arenarius.
21. A. exaratus.
22. A. madagascariensis.
23. A. annuus.
24. A. longipes.

Sect. *Amphilophis.*

25. A. Wrightii. (New Mexico, no. 2104, C. Wright, 1851–52.)
26. A. asperifolius.
27. A. Hildebrandtii.

Sect. *Sorghum.*

28. A. bipennatus.

—F. L. Scribner.

EDITORIAL NOTES.

Dr. W. G. Farlow is to give the fourth lecture in the course before the San Diego Society of Natural History, California.

Messrs. C. R. and J. H. Orcutt will soon start on a botanical trip through Lower California, and Rev. E. L. Greene will explore the islands near the coast.

The Deutsche botanische Monatsschrift, edited by Dr. Leimbach, has entered upon its third year enlarged and improved. It is an excellent local journal.